



2.4 mm, Dual Polarized Scalar Feed Horn Antenna, 24 to 43.5 GHz, 15 dBi Gain

Description:

SAF-2434431535-328-2F2F-R1-280-DP is a broadband dual polarized scalar feed horn antenna that covers several popular 5G Frequency Range 2 (FR2) bands from 24 to 43.5 GHz. The antenna features an integrated orthomode transducer (OMT) that provides high port isolation and a broad band scalar horn that provides low sidelobe levels. The OMT enables the antenna to separate a circular or elliptical polarized waveform into two linear, orthogonal waveforms or vice versa. The dual polarized horn also supports either vertical or horizontal polarized waveguide forms. At center frequency, the horn antenna exhibits 15 dBi nominal gain and a typical half power beamwidth of 35 degrees and -25 dB sidelobe levels, respectively. The antenna exhibits 40 dB typical port isolation between the horizontal and vertical ports. All ports are equipped with 2.4 mm female coax connectors. The OMT ([SAT-343-28028-S1](#)), compact square to circular transition ([SWT-280328-SA-C-QC](#)), broadband scalar feed horn ([SAF-2234431535-328-S1](#)), and broadband waveguide to coax adapters ([SWC-2434431505-282F-R1](#)) can all be purchased separately. Other configurations, such as 2.4 mm male connectors, are available under different model numbers.



Features:

- Broadband Coverage from 24 to 43.5 GHz
- 2.4 mm Coaxial Interface
- Linear and Circular Polarization
- Low Side Lobe Levels
- High Port Isolation

Applications:

- 5G FR2 mmW Systems
- Radar and Communication Systems
- Antenna Range
- Circular and Linear Waveform Separation and Combination

Electrical Specifications:

Parameter	Minimum	Typical	Maximum
Frequency	24 GHz		43.5 GHz
Gain		15 dBi	
3 dB Beamwidth, E-plane @ 33 GHz		35°	
3 dB Beamwidth, H-plane @ 33 GHz		35°	
Sidelobe Levels		-25 dB	
Isolation		40 dB	
Return Loss (24-26.5 GHz, 42-43.5 GHz)		10 dB	
Return Loss (26.5-42 GHz)		15 dB	
Specification Temperature		+25 °C	
Operating Temperature	-40 °C		+85 °C

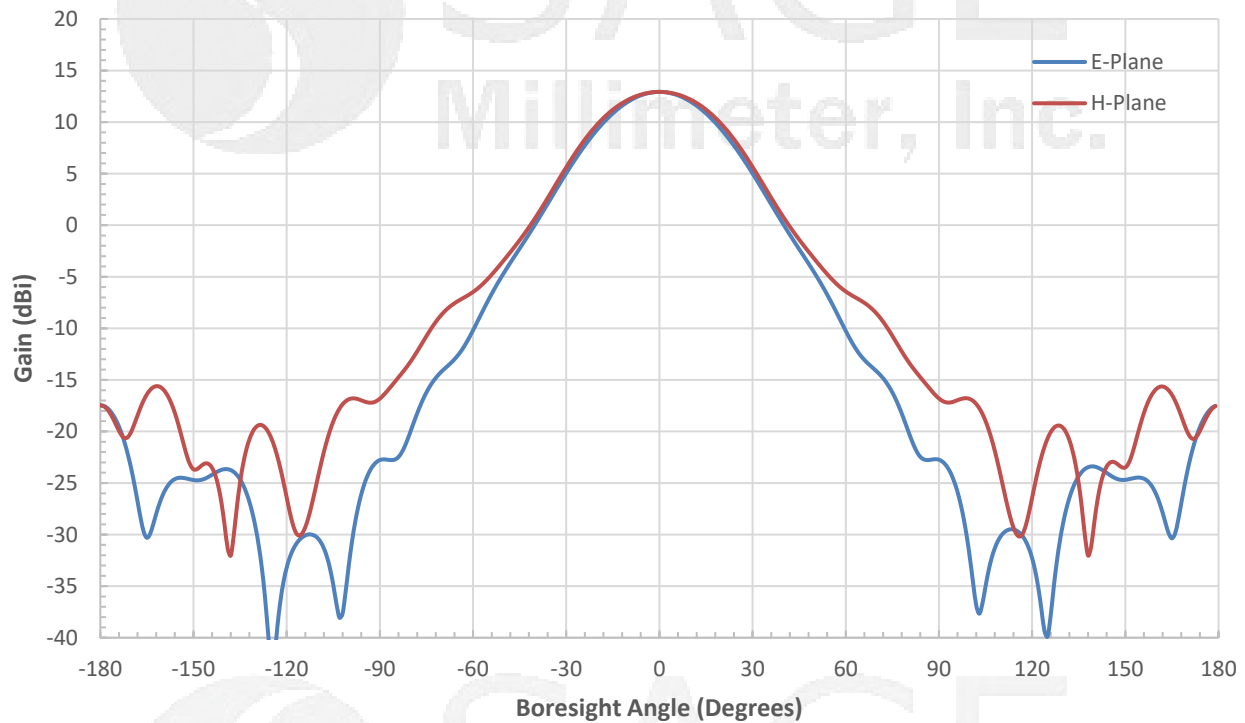


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Mechanical Specifications:

Item	Specification
Horizontal and Vertical Ports	2.4 mm Female Connectors, Right Angle Configuration
Material	Aluminum and Brass
Finish	Gold Plated
Weight	6.5 oz.
Outline	AF-TAC15-DP

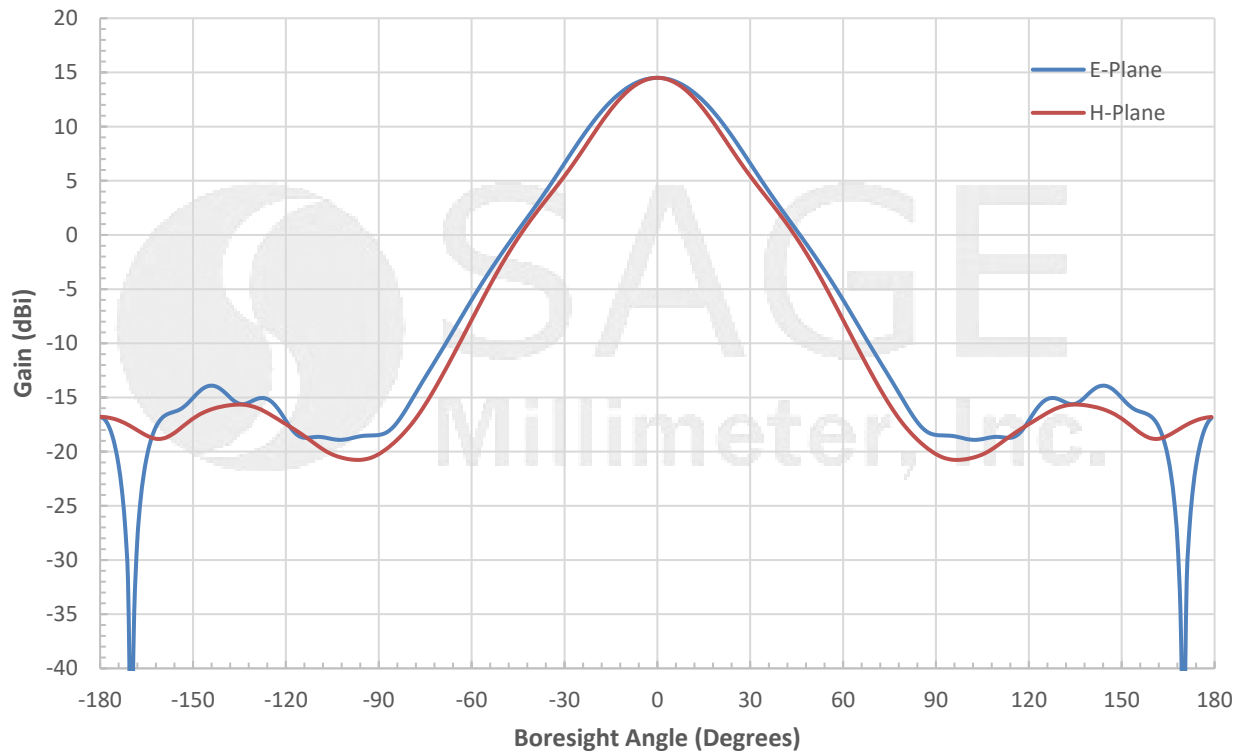
Simulated Antenna Patterns @ 22 GHz



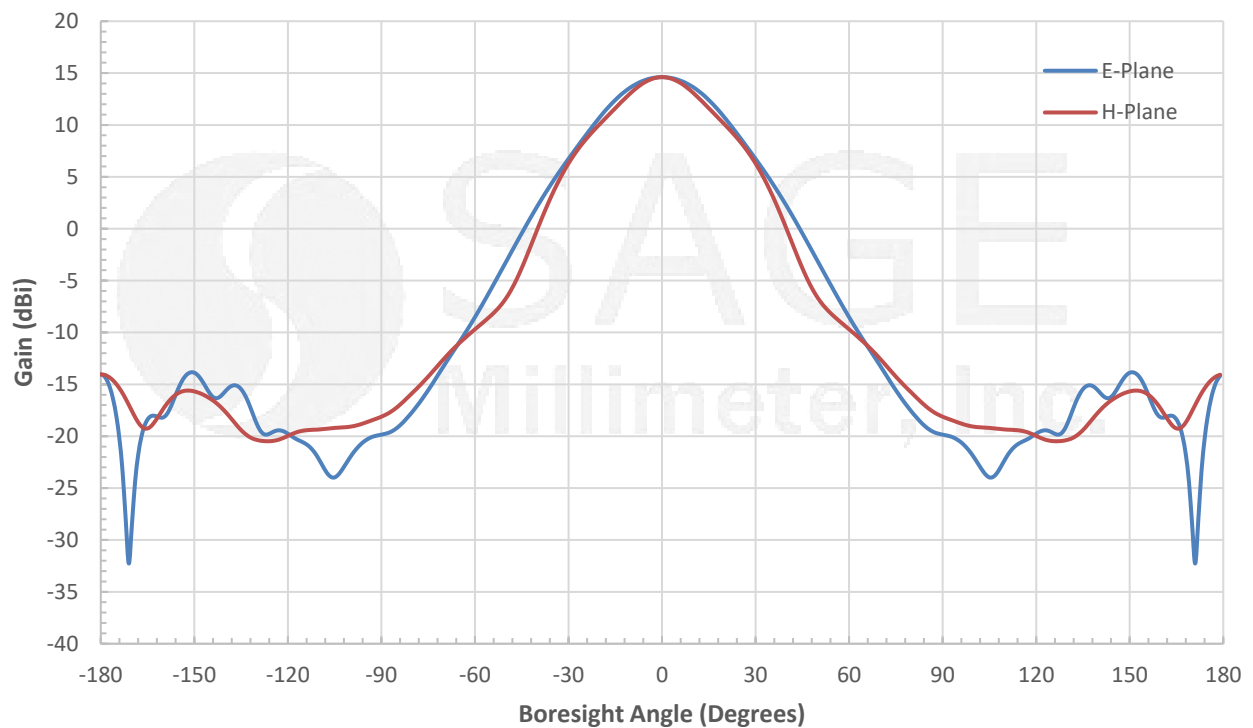


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Simulated Antenna Patterns @ 24 GHz



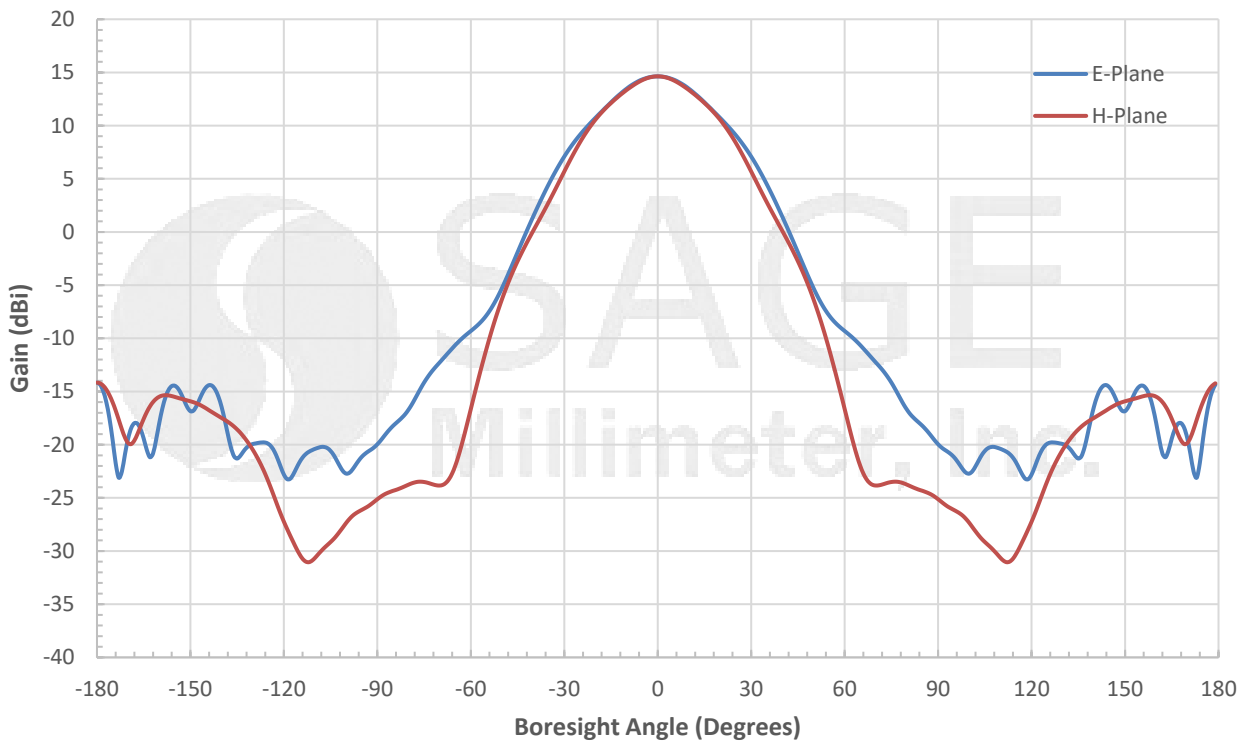
Simulated Antenna Patterns @ 30 GHz



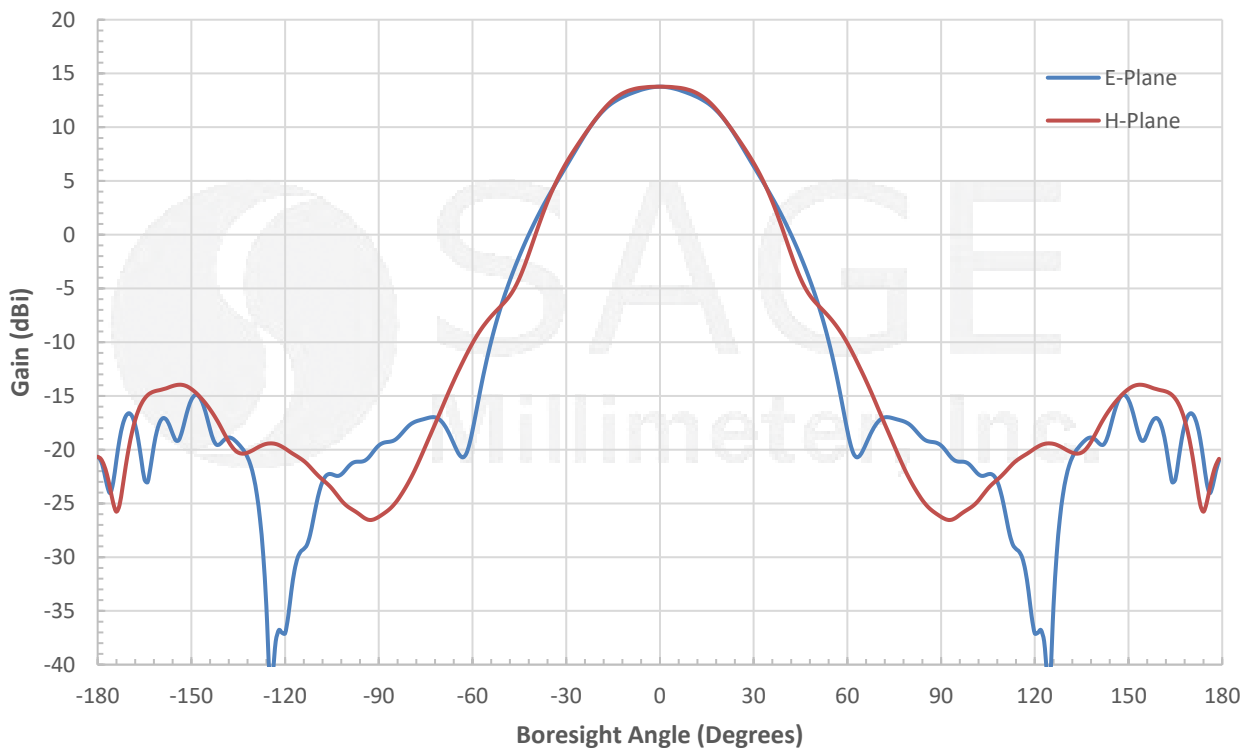


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Simulated Antenna Patterns @ 36 GHz



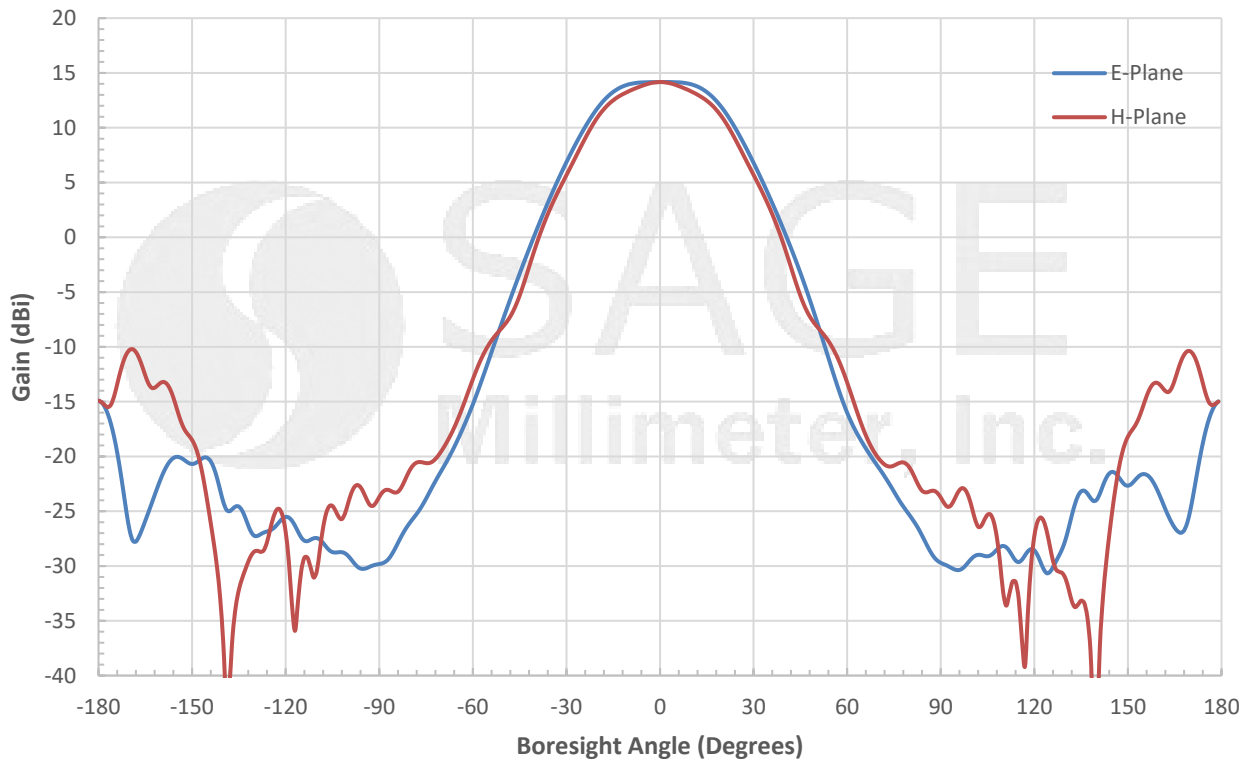
Simulated Antenna Patterns @ 42 GHz



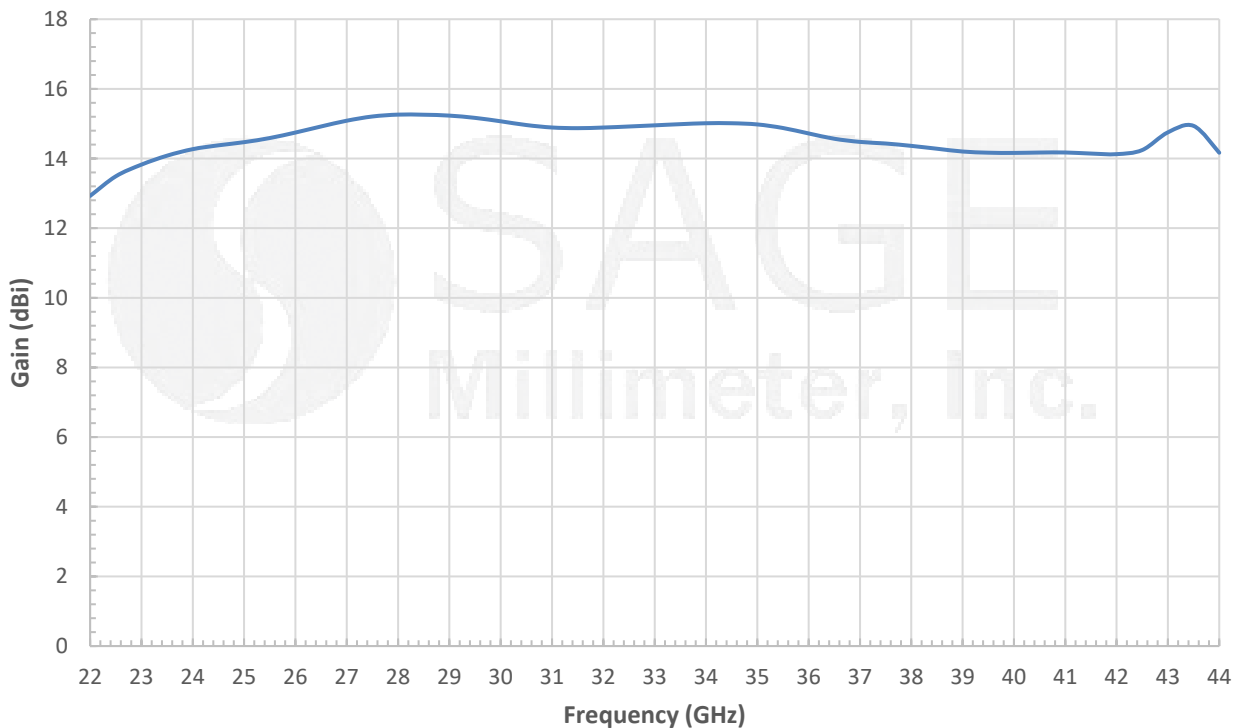


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Simulated Antenna Patterns @ 44 GHz



Simulated Gain vs Frequency

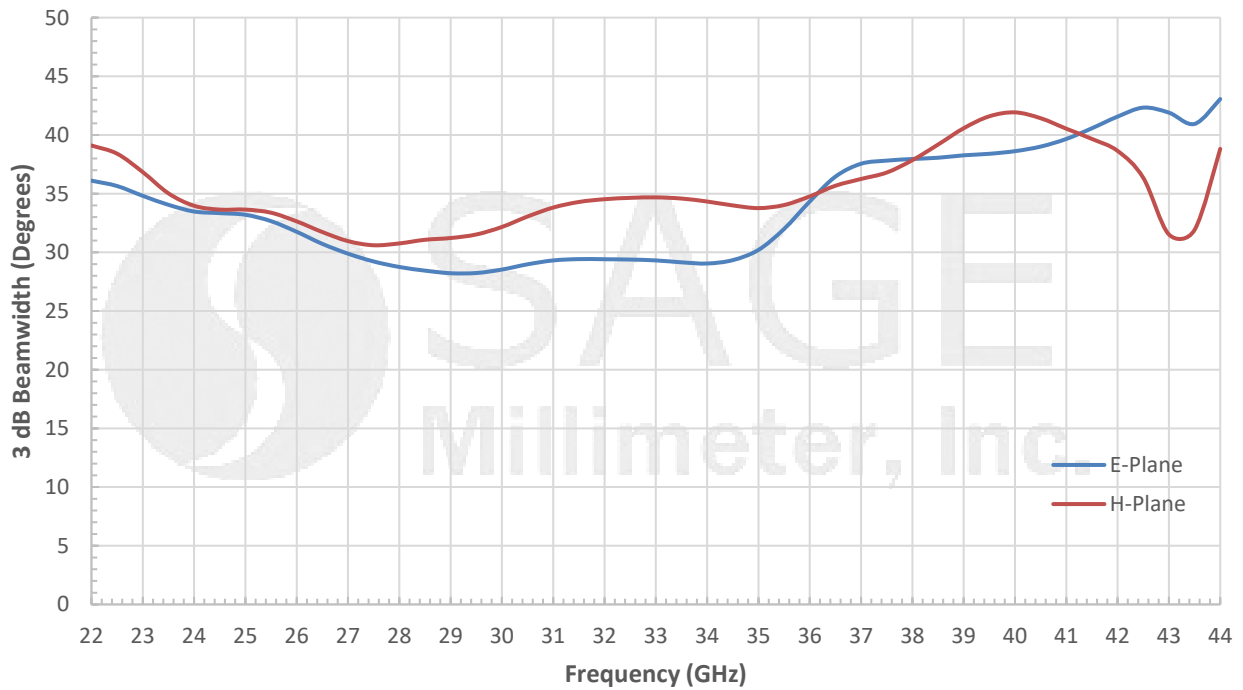


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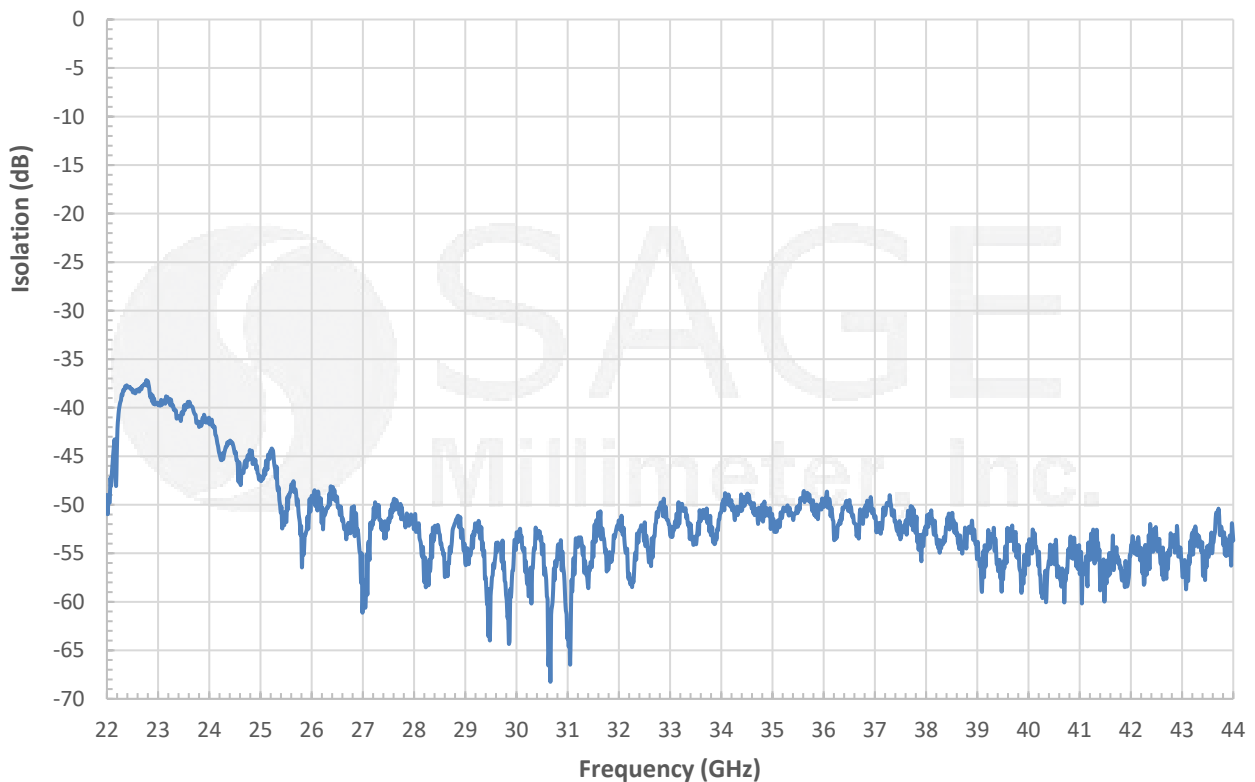


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Simulated 3 dB Beamwidth vs Frequency

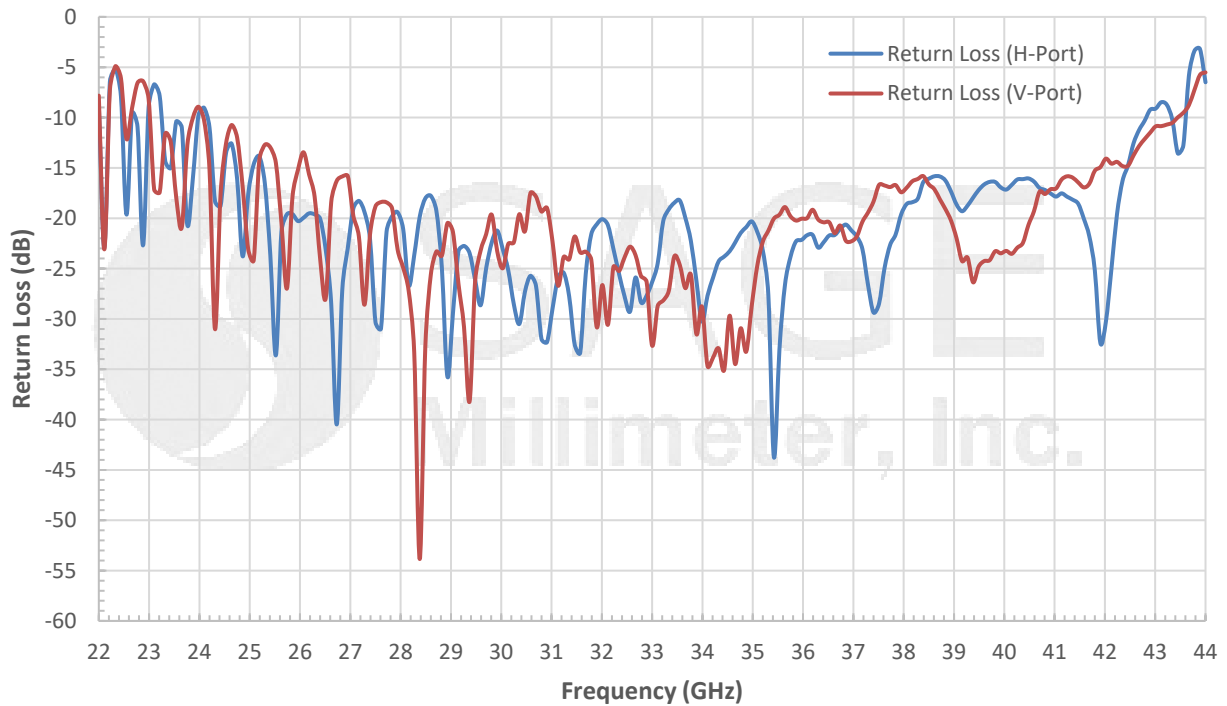


Typical Measured Isolation vs Frequency

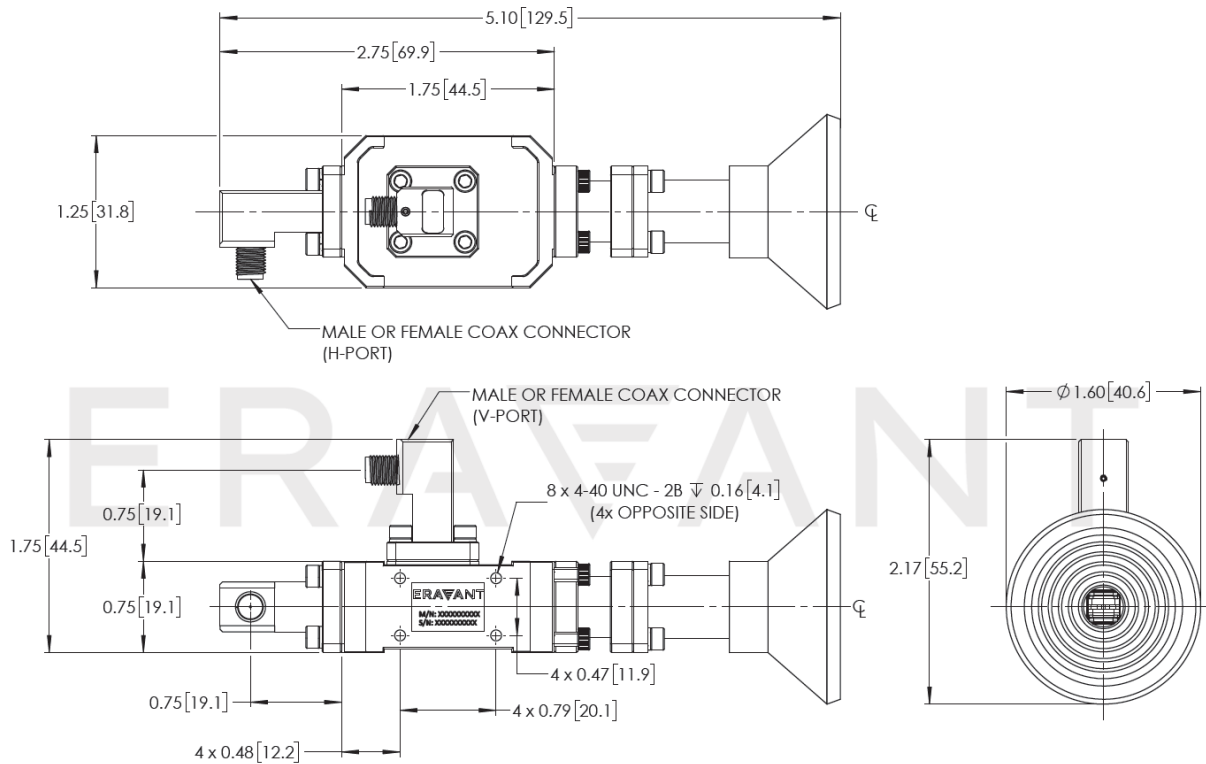


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Typical Measured Return Loss vs Frequency



Mechanical Outline: (Unless otherwise specified, all dimensions are in inches [millimeters])



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Note:

- Antenna Patterns, Gain, & 3 dB Beamwidth data are simulated. Actual data may vary, slightly.
- Return Loss and Isolation data are collected from a sample lot. Actual data may vary unit to unit, slightly.
- All testing was performed under +25 °C room temperature.
- For more information about OMT based dual-polarized antennas, an informative blog is available here: <https://www.eravant.com/dual-polarized-antennas-from-eravant>
- Eravant reserves the right to change the information presented without notice.

Caution:

- Any foreign objects in the antenna or waveguide will cause performance degradation and possible device damage.

